16.0 OTHER REQUIRED DISCLOSURES

This section addresses other potential impacts as required by CEQA and/or NEPA: relationship between short-term uses and maintenance of long-term productivity, irreversible or irretrievable commitment of natural resources, unavoidable adverse impacts, and growth-inducing effects.

16.1 Short-Term Uses and Long-Term Productivity

The relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity of the affected resources (identified below) for the Proposed Project and Alternatives A through E is described below. Short-term impacts, primarily due to reservoir drawdown or complete dewatering and treatment with rotenone, are associated with the implementation of the Proposed Project and all project alternatives. However, the maintenance of long-term biological and economic resources productivity and the benefits of pike eradication to Lake Davis and the Sacramento-San Joaquin Delta outweigh short-term adverse impacts on individual resources. The short-term uses of the environment for the Proposed Project and project alternatives are addressed in the discussion below by resource category.

16.1.1 Surface Water Resources

Short-term impacts of the pike eradication project on surface water hydrology and geomorphology would include soil erosion and resultant turbidity and tributary head-cutting for at least three runoff seasons for three alternatives and four runoff seasons for two alternatives. Surface water quality impacts (significant and unavoidable) include anoxic lake conditions developing earlier in the summer and reduced flow in Big Grizzly Creek during treatment that would result in decreased dissolved oxygen and increased water temperature. Other temporary impacts include elevated bacteria levels due to rotenone degradation (less than significant) and the decomposition of dead fish, as well as elevated turbidity, nutrients, and water temperature in the reservoir and/or Big Grizzly Creek (significant and unavoidable).

16.1.2 Groundwater Resources

Potential short-term impacts are associated with both groundwater levels and groundwater quality in private wells close to the reservoir, and all of these impacts are less than significant for all of the project alternatives except Alternative E. The lowering of water levels would be due to the drawdown of the reservoir and time to refill associated with all of the alternatives except Alternative D (48,000 acre-feet). The impact to groundwater levels under Alternative E is significant but mitigable. The impacts to groundwater quality are unlikely for several reasons documented in Section 4.2, but may result from the rotenone formulations applied to the tributary streams where water may seep out of the tributaries into the underlying groundwater or be pulled from Big Grizzly Creek into nearby wells from pumping. However, these potential impacts would not affect the groundwater significantly.

16.1.3 Air Quality

Emissions associated with the pike eradication effort would have a less than significant short-term impact on air quality in the Lake Davis area. Impacts are primarily related to objectionable odors, air pollutant emissions from equipment required for application, particulate dust from construction-type activities, and dust from powdered rotenone application. Mitigation measures can further reduce this impact.

16.1.4 Noise

The Proposed Project and all project alternatives would result in a temporary increase in noise levels in the project area. These impacts are primarily related to transportation/hauling to all staging areas and staging area mobilization, airboat operation, neutralization, and supplemental pumping, as well as pumps and generator, pipeline construction and helicopter noise associated with Alternative E. Mitigation measures can reduce this impact to less than significant.

16.1.5 Biological Resources

16.1.5.1 Aquatic Resources

The Proposed Project and all of the alternatives would result in the short-term loss of desirable fish species (trout) and the long-term loss of non-desirable species within Lake Davis and its tributary streams. Following treatment, the composition of the fish community in Lake Davis and its tributary streams would be limited to rainbow, brown and brook trout , brown bullhead (which would persist because of their much higher tolerance to rotenone), and possibly some other warmwater species with higher rotenone tolerances than pike and trout. The loss of trout would be a short-term loss as restocking would occur as soon as rotenone has dissipated and in the following spring after iceout as described in the Fisheries Management Plan (Appendix G). Pike would be eradicated, (although they are unlikely to be eradicated under Alternative E) and are not expected to recover, which is a desired long-term consequence of the project.

The Proposed Project and all of the alternatives would result in short-term and long-term impacts to macroinvertebrate communities. Short-term impacts would occur to the zooplankton community in Lake Davis and the stream and spring macroinvertebrate communities. Sensitive species in the streams and spring macroinvertebrate communities would be protected by the mitigation measures described in Section 7.3.1. These communities are expected to recover within a few months of treatment.

The littoral community within Lake Davis may take two or more years to recover, which is considered a long-term impact. This community, however, is not unique and was not present prior to the construction of Grizzly Valley Dam in 1968. This community is expected to recover over time. It is also probable that some individual species may take longer than two years to reoccur in treated areas. This may be because of treatment or because of the temporal and spatial patchiness of macroinvertebrate distributions. This impact cannot be mitigated.

The benefits of the project far outweigh the short- and long-term impacts described above, both within Lake Davis, which would be restored to the trophy trout fishery that historically existed and in other waters of the Central Valley where the threat of introduced pike would be substantially reduced. Pike could do irreversible harm to the fisheries of the Central Valley should they become established in these waterways. In Alaska, pike have resulted in the near extermination of salmonids from some waterways. It is anticipated that they would have a similar effect on the salmonid populations of the Central Valley, given the highly suitable pike habitat present in these waters. This would reduce and potentially eliminate important commercial and recreational salmon fisheries in California. Pike would also have significant effects on ESA listed delta smelt as well as splittail if they became established in the Delta. This could affect the operation of the CVP and SWP which would have significant economic implications throughout the state.

16.1.5.2 Terrestrial Wildlife

Short-term impacts to terrestrial wildlife include a temporary loss of the primary food base for bald eagles utilizing the lake that may contribute to nest failure for eagle territories associated with Lake Davis and the temporary loss of aquatic insects and their terrestrial forms that may impact terrestrial species of insectivorous wildlife, including amphibians, reptiles, bats, and birds. Short-term impacts also include alteration of habitats used by various terrestrial wildlife species, including a reduction in the surface area of the reservoir as used as foraging habitat by the bald eagle and osprey, and increased predation and reduced habitat for nesting and migrating Canada geese and other waterfowl. The project could result in providing a land or shallow-water connection to the island in Lake Davis that is used as a colonial nesting site by California gulls. The loss of the separation between the island and shore prior to completion of the gulls nesting period could allow predators access to the island when nesting gulls and their chicks are highly vulnerable. Mitigation measures can reduce these impacts to less than significant.

16.1.5.3 Botanical Resources

Short-term impacts to botanical resources include the temporary loss of non-sensitive terrestrial vegetation, a less than significant impact, as well as temporary significant but mitigable impacts to riparian vegetation, particularly along tributary streams, temporary significant but mitigable impacts to wetland vegetation (i.e., springs and seeps), and direct significant but mitigable impacts to special-status plant species. Ground disturbance in the PNF during the implementation of the Proposed Project and project alternatives could result in the spread of noxious weeds, to the detriment of native habitats, a significant but mitigable impact. Mitigation can reduce these impacts to a less than significant level.

16.1.6 Land Use and Management

The Proposed Project and project alternatives would result in a temporary significant impact on the containment of cattle in the Grizzly Valley allotment as reservoir drawdown falls below the current fence extending into Lake Davis. There is also a short-term impact due to the overlap in project traffic from the Lake Davis pike eradication project and Freeman Project. Mitigation measures can reduce this impact to less than significant.

16.1.7 Aesthetic Resources

The impacts on visual resources associated with the Proposed Project and project alternatives are significant and unavoidable in the short-term due to the drawdown of the lake. A band of shoreline would be visible as foreground and middleground views to recreationists and the general public for up to eight months during the year treatment would occur and for 5 to 25 months for refill. The short-term impact on aesthetics would be significant and unavoidable.

16.1.8 Cultural Resources

Implementation of the pike eradication project could disrupt cultural resources in the short term due to ground disturbance (from staging areas and boat ramp extensions) and erosion associated with the exposed lakebed. Forest closure is part of the project, and mitigation measures can reduce this impact to less than significant.

16.1.9 Recreation Resources

The Proposed Project and project alternatives would result in loss of recreation in the vicinity of Lake Davis from four months up to two seasons. Recreation could be dispersed to other recreation areas, which would have short-term impacts on those areas. For all except Alternative E, mitigation measures can reduce this impact to less than significant.

16.1.10 Economic Resources

No Project would result in less than significant economic impacts on the Lake Davis recreation area due a decrease in recreation. There is potential for substantial adverse economic impacts throughout California if the pike were to escape Lake Davis and become established downstream. In the short term, however, the Proposed Project is expected to result in adverse economic impacts based on estimated reductions in output, income, and employment compared to existing conditions. The long-term economic impacts of the Proposed Project and project alternatives at Lake Davis are beneficial.

16.1.11 Public Services

The effects of the pike eradication effort on law enforcement, fire protection and emergency services, and solid waste disposal would be temporary and less than significant. Effects on domestic and downstream water supply are significant in the short term, and mitigation measures can reduce this effect to less than significant.

16.1.12 Human and Ecological Health Concerns

There would be short-term impacts to human and ecological health. In the short term, non-target aquatic species would be killed. Non-target amphibian and obligate aquatic reptile species may be impacted but the impact is mitigable. The potential for adverse human health impacts to youth from surface water exposure and sediment exposure is considered less than significant, as is the hazardous materials impacts to human health from groundwater exposure and/or toxicity. There are inhalation risks to humans from naphthalene from the use of Noxfish® at various distances from the treatment area that are significant but can be

minimized through implementation of the proposed Forest Closure. For mitigation, the Noxfish® formulation would be balanced and/or combined with CFT Legumine® use that would allow adequate rotenone concentrations in the water for the desired piscicide effect, but would not result in air concentrations for volatile solvent components above the health based screening levels (HBSLs) protective of human health. Human impacts from dead fish odor would be less than significant. Finally, fugitive dust resulting from the use of powdered rotenone would have a significant but mitigable impact on both non-aquatic wildlife and humans.

16.1.13 Social Issues and Environmental Justice

In the short term, significant adverse impacts on local businesses dependent on Lake Davis based recreation and tourism are likely. Also, recreational fishing and firewood collection opportunities for the low-income population would be reduced in the short term. However, the beneficial impact on local economic conditions in the long term would likewise be beneficial for environmental justice factors. In the long term, the Proposed Project and alternatives would lead to increased economic output, income, and employment in the project area after treatment and neutralization because of higher recreation levels over a 20-year period. Opportunities for recreational and subsistence fishing would improve over the long term.

16.2 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are those that cause either directly or indirectly the use of natural resources so that they cannot be restored or returned to their original condition. Irreversible decisions affect renewable resources such as soils, wetlands, and waterfowl habitats. They are considered irreversible because their implementation would affect a resource that has deteriorated such that renewal takes extensive time or financial resources or because they would destroy a resource.

Irretrievable commitments of natural resources mean the decision would result in loss of production or use of the resources. They represent opportunities forgone for a substantial period of time that the resources cannot be used.

For the Proposed Project and all project alternatives, these potential irreversible and irretrievable impacts are associated with the consumption of: energy resources to implement the project.

16.2.1 Energy Resources

Energy resources necessary for this project would include gasoline and diesel fuel to power the vehicles and equipment proposed for use in the northern pike eradication activities. Electrical power would be supplied by fuel-powered generators based on the proximity of the project activities to electrical receptacles. The Proposed Action and Alternatives A, B, C, and D would result in the most fuel consumption based on the number of vehicles and equipment required for the rotenone application. For Alternative E, while equipment would not be required for the rotenone application, additional pumps would be used to completely dewater the reservoir, and helicopters would be used to deliver and position the pumps. Both

helicopters and pumps would require fuel. The No Project alternative would result in the smallest use of energy resources, involving only the fuel currently used in vehicles to drive to the lake, and in watercraft used on the lake for current pike control measures such as electrofishing.

16.2.2 Land Resources

There are no irreversible or irretrievable commitments of land resources associated with the Proposed Project and project alternatives.

16.3 Growth-Inducing Impacts

Section 21100(b)(5) of CEQA requires that an EIR discuss the growth-inducing impacts of a proposed project. This requirement is further explained in the CEQA Guidelines Section 15126(g), which states that an EIR must address "the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly in the surrounding environment." In NEPA, growth-inducing impacts fall under the category of potential indirect effects. Indirect effects include those that occur later in time or that remove obstacles to population growth or encourage and facilitate other activities that could stimulated growth later in time. Section 12.0 discusses the effects of the Proposed Project and project alternatives on the regional economy.

While No Project/No Action would result in less than significant economic impacts on the Lake Davis recreation area due a decrease in recreation, the long-term economic impacts of the Proposed Project and project alternatives at Lake Davis are beneficial. Under No Project/No Action there is potential for substantial adverse economic impacts throughout California if the pike were to escape Lake Davis and become established downstream. The Proposed Project and project alternatives may lead to growth in the Lake Davis area due to the restoration of the trophy trout fishery that historically existed.

16.4 Unavoidable Adverse Impacts

Unavoidable adverse impacts are those environmental consequences of an action that cannot be avoided, either by changing the nature of the action or through mitigation if the action is undertaken. Significant impacts from No Project are assumed to be not mitigable in most cases, because an action that is currently unplanned and/or unfunded would be required to resolve the impact. A summary of the unavoidable adverse impacts by alternative follows. Resources that would incur significant and unavoidable adverse impacts include: surface water quality, aquatic resources, aesthetics, and recreation.

16.4.1 No Project/No Action

There is the potential for substantial adverse economic effects throughout California if the pike were to escape Lake Davis and become established downstream. These effects would be driven by decreased recreational and commercial fishing and reductions in water exports from the Delta, which in turn could adversely affect recreational fishing, commercial fish production, and agricultural values. Statewide adverse economic impacts under the No Project/No Action alternative have the potential to be significant and unavoidable.

The No Project/No Action would result in impacts to fish-eating terrestrial wildlife due to temporary reduction of the fish community of Lake Davis and tributaries. The continued presence of pike in Lake Davis and related potential for pike escapement and human transport under the No Project/No Action alternative could adversely affect downstream water supplies.

Additionally, if the pike remain in Lake Davis, the DFG would likely need to increase the number of law enforcement personnel assigned in the area (including permanent assignments) in an attempt to keep anglers from transporting pike to other locations. The DFG may also need to conduct directed enforcement efforts, such as checkpoints, on a regular basis. Without additional personnel, this could adversely affect the DFG's ability to respond to calls for service and to provide general patrols within Plumas County. Finally, the DFG may need to supplement existing law enforcement efforts with wardens from outside the area, which in turn may impact patrol efforts throughout the State.

The No Project/No Action alternative would contribute to an increase in recreation by allowing visitors to Lake Davis the opportunity to learn more about the ecology of the area as a result of planned development of interpretive displays by the DFG and the PNF. However, fishing for trout would steadily decline over the next ten years. This is supported by recent creel surveys (Powers 2003) showing the trout catch rates per hour declined by about 50 percent from 1997 until 2003. In ten years it is assumed there would not be any more trout fishing use at Lake Davis. This would be attributable to catch rates at the same level or lower than what was reported for 2003. Over the ten year period trout anglers that now fish at Lake Davis would gradually displace themselves to other trout fishing lakes in northern California.

16.4.2 Proposed Project/Proposed Action – 15,000 Acre-Feet (Plus Treatment)

Significant and unavoidable adverse impacts are associated with surface water quality concerns of turbidity, anoxic lake conditions, and reduced flow in Big Grizzly Creek that results in decreased dissolved oxygen and increased water temperature. The reservoir drawdown and treatment would adversely affect the littoral macroinvertebrate community and would result in the loss of fish populations. Collectively, eradication and/or suppression of some aquatic invertebrate populations in the Lake Davis project area from rotenone toxicity is likely. The amount of exposed lakebed observable to visitors is a significant impact to aesthetic resources.

16.4.3 Alternative A – 15,000 Acre-Feet (Plus Treatment Including Powder)

Significant and unavoidable adverse impacts are similar to those for the Proposed Project.

16.4.4 Alternative B – 5,000 Acre-Feet (Plus Treatment)

Significant and unavoidable adverse impacts are similar to those for the Proposed Project. In addition, the impact to fish populations from both the reservoir drawdown and rotenone treatment to tributaries is significant and unavoidable due to the longer time for the reservoir to recover to support fish. Longer recovery of fish in the tributaries is a greater impact as

well. Reservoir drawdown would also have a significant impact by reducing aquatic and wetland habitats used by terrestrial wildlife.

16.4.5 Alternative C – 35,000 Acre-Feet (Plus Treatment)

Significant and unavoidable adverse impacts are similar to those for the Proposed Project with the exception of aesthetic resources from the exposed reservoir bed, which is less than significant for Alternative C.

16.4.6 Alternative D – 48,000 Acre-Feet (Plus Treatment)

Significant and unavoidable impacts would result for dissolved oxygen and water temperature impacts from reduced flow in Big Grizzly Creek. In addition, the reservoir treatment would adversely affect the littoral macroinvertebrate community and would result in the loss of fish populations.

16.4.7 Alternative E – Dewater Reservoir and Tributaries (No Chemical Treatment)

Significant and unavoidable impacts include the surface water quality parameters, the potential for pike escapement, dewatering impacts on fish and macroinvertebrate community, reduction of aquatic and wetland habitats used by terrestrial wildlife, and aesthetic resources. Direct adverse impact due to loss of recreation use at Lake Davis for up to four seasons is significant and unavoidable. During reservoir drawdown and refill, there would only be one area on the southeast corner of the reservoir where boats could be launched.

16.5 Energy Requirements and Conservation Measures

Energy resources necessary for this project would include gasoline and diesel fuel to power the vehicles and equipment proposed for use in the northern pike eradication activities. Electrical power would be supplied by fuel-powered generators based on the proximity of the project activities to electrical receptacles. For Alternative E, additional pumps would be used to completely dewater the reservoir, and helicopters would be used to deliver and position the pumps. Both helicopters and pumps would require fuel.

All equipment used in the implementation of the pike eradication project would be kept up to date with maintenance requirements and would be used as efficiently as possible (i.e. no idling).